What is the best way to treat patients with white-coat hypertension?

Shobha Rao, MDChun-Tsai Liu, MDLaura Wilder, MLIS
University of Texas Southwestern, Dallas

■ EVIDENCE-BASED ANSWER

Evidence is conflicting regarding the risk of cardiovascular complications from white-coat hypertension. Some but not all studies show lower cardiovascular event rates for patients with white-coat hypertension compared with those with sustained hypertension (strength of recommendation [SOR]: B, cohort studies with conflicting results and methodological problems).

Little information is available about the use of antihypertensive medication for white-coat hypertension. In 1 small randomized trial, the difference in stroke incidence and cardiovascular complications between active treatment and placebo did not reach statistical significance (SOR: B, based on an underpowered randomized controlled trial). Some experts recommend that patients with white-coat hypertension should be evaluated for evidence of target organ injury and monitored for the development of sustained hypertension (SOR: C, expert opinion).

■ EVIDENCE SUMMARY

A prospective cohort study compared cardiovascular events among patients with white-coat hypertension vs those with sustained hypertension. The study evaluated 479 patients with persistently elevated clinic systolic blood pressures of 140 to 180 mm Hg. Using 24-hour intraarterial ambulatory blood pressure monitoring (ABPM), they found that 126 patients had ambulatory blood pressures below 140/90 mm Hg (white-coat hypertension) while 353 patients maintained pressures above 140/90 mm Hg (sustained hypertension). On average, white-coat hypertension patients were younger than sustained hypertension patients (44 vs 52 years) but were otherwise similar. Over the next 9 years, patients with white-coat hypertension had significantly fewer cardiovascular events than patients with sustained hypertension (Table).¹

Another prospective cohort study compared fatal and nonfatal cardiovascular event rates among patients who had white-coat hypertension, sustained hypertension, or were normotensive. Investigators performed 24-hour ABPM on 1187 patients who had clinic blood pressures over 140/90 on three visits. They found that 228 patients had white-coat hypertension, defined as mean ambulatory blood pressures below the 90th percentile
of a normotensive population, and 959 patients had sustained hypertension. They followed these patients, along with 205 normotensive controls, for a mean of 3.2 years. Cardiovascular event rates did not differ significantly between normotensive and white-coat hypertension patients (\(P=.83\); see Table), but the difference in event-free survival between the sustained hypertension group and both the white-coat hypertension and normotensive groups was highly significant (\(P=.002\)).

In contrast, a recent 10-year longitudinal study of 146 normotensive people, 76 people with white-coat hypertension, and 344 with sustained hypertension showed that cardiovascular event rates were similar for patients with white-coat and sustained hypertension, and were significantly higher than in the normotensive group (\(P=.03\) overall, \(P=.03\) between white-coat hypertension and normotension and \(P=.01\) between sustained hypertension and normotension).

One randomized trial evaluated outcomes of antihypertensive therapy for white-coat hypertension for patients aged >60 years. Ninety-nine patients with white-coat hypertension were identified on the basis of systolic blood pressure greater than 160 mm Hg in clinic and normal 24-hour ABPM and were randomized to either place-bo or drug therapy. Active treatment did not significantly lower ambulatory blood pressure in white-coat hypertension, but it did reduce blood pressure measured in clinic. After a year, medication produced an absolute reduction in cardiovascular events of 8.6%, and in stroke of 4.2%. Neither result was statistically significant due to the small sample size.

### Cohort studies of patients with white-coat hypertension

<table>
<thead>
<tr>
<th>Patients</th>
<th>Outcome</th>
<th>Total number of events</th>
<th>(P) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>479 patients, mean age of 64(^1)</td>
<td>Cardiovascular events</td>
<td>NT: N/A</td>
<td>15 (11.9%) 83 (23.5%)</td>
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<td></td>
<td></td>
<td>WCH: 4 (1.9%)</td>
<td>3 (1.3%)</td>
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<tr>
<td></td>
<td></td>
<td>SH: 10 (6.8%)</td>
<td>14 (18.4%)</td>
</tr>
<tr>
<td>1392 patients, mean age of 51(^2)</td>
<td>Cardiovascular events</td>
<td>NT: N/A</td>
<td>15 (11.9%) 83 (23.5%)</td>
</tr>
<tr>
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<td>WCH: 4 (1.9%)</td>
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<td>SH: 10 (6.8%)</td>
<td>14 (18.4%)</td>
</tr>
<tr>
<td>566 patients, mean age of 48(^3)</td>
<td>Cardiovascular events</td>
<td>NT: N/A</td>
<td>15 (11.9%) 83 (23.5%)</td>
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<td></td>
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RECOMMENDATIONS FROM OTHERS

The American College of Cardiology and American Academy of Family Physicians have made no specific recommendations about white-coat hypertension. The Blood Pressure Monitoring Task Force V concluded that a significant number of white-coat hypertension patients become truly hypertensive over years of follow-up.5

Experts agree that patients with white-coat hypertension should be indefinitely monitored for the development of sustained hypertension.6 Treatment is not needed unless the patient has sustained hypertension, evidence of cardiovascular disease, or signs of target organ injury.7,8 Typically, expert opinion recommends confirming the diagnosis of white-coat hypertension with home blood pressure records or ambulatory blood pressure monitoring.

CLINICAL COMMENTARY:

White-coat hypertension represents one point along the continuum of hypertension

Mark B. Stephens, MD, MS
Uniformed Services University, Bethesda, Md

Unfortunately, the best available clinical evidence provides an unfulfilling answer to the question posed by this Clinical Inquiry. It requires inductive reasoning and logic to derive a treatment plan from the evidence presented. Perhaps it is because the diagnosis of white-coat hypertension remains poorly defined and clinically elusive.

Nevertheless, application of the simple principle of “where there’s smoke, there’s fire” fits best here. Clinicians should be aware that white-coat hypertension represents one point along the continuum of hypertensive disease. When diagnosed, patients with white-coat hypertension should at a minimum be followed for associated morbidities and treated when systemic hypertension is identified.

REFERENCES


